

## WHAT IS CLAIMED IS:

1. A method for evaluating at least one of a risk, safety and efficiency property of a portfolio belonging to a class of one of a probability density and a probability distribution, for a given time frame, comprising:

obtaining at least one benchmark  $x_b$  having benchmark profit, benchmark loss and benchmark return values;

fitting one of

a stochastic investment class over said given time frame by obtaining a location parameter  $a$ , a scale parameter  $b$  and other corresponding shape parameters; and

an empirical investment class over said given time frame;

determining a mean return value  $x_m$  and a standard deviation  $\sigma_x$  using said class;

displaying said portfolio graphically using said return value  $x_m$  and said standard deviation  $\sigma_x$  on an investment chart;

determining at least one solution to  $(x_m - x_b) = [(E_S - x_b) \cdot \alpha] + [(E_P - x_b) \cdot \gamma]$ , wherein  $(E_S - x_b)$  is a component of  $(x_m - x_b)$  representing an Expected Shortfall,  $(E_P - x_b)$  is a component of  $(x_m - x_b)$  representing an Expected Profit,  $\gamma$  is a component of  $(x_m - x_b)$  representing a probability of profit and  $\alpha$  is a component of  $(x_m - x_b)$  representing a probability of loss for said portfolio using properties of said class;

graphically illustrating at least one component of said expression, in the form of a topographical map on said investment chart using said benchmark  $x_b$ ;

whereby said portfolio can be evaluated in terms of at least one of risk, safety and efficiency.

2. A method as claimed in claim 1, further comprising:

determining at least one solution to  $(x_m - x_b) = I_S + I_P$ , wherein  $I_S$  is a component of  $(x_m - x_b)$  representing an insurance against an Expected Shortfall and  $I_P$  is a component of  $(x_m - x_b)$  representing an insurance against an Expected Profit;

graphically illustrating at least one of  $I_S$  and  $I_P$  in the form of topographical maps on said investment chart using said benchmark  $x_b$ .

3. A method as claimed in claim 2, further comprising :

determining  $E_3$  efficiency as the negative value of the ratio of the insurance against an Expected Profit  $I_P$  to the insurance against an Expected Shortfall  $I_S$  ;

graphically illustrating said  $E_3$  efficiency, in the form of topographical map on said investment chart using said benchmark  $x_b$ .

4. A method as claimed in any one of claims 1 to 3, further comprising :

determining at least one of  $E_1$  efficiency as the ratio of the probability of profit  $\gamma$  to the probability of loss  $\alpha$ ,  $E_2$  efficiency as the negative value of the ratio of Expected Profit  $(E_P - x_b)$  to Expected Shortfall  $(E_S - x_b)$  and  $E_4$  efficiency as the ratio of the risk premium  $(x_m - x_b)$  to the probability of loss  $\alpha$ ;

graphically illustrating at least one of said efficiencies, in the form of topographical maps on said investment chart using said benchmark  $x_b$ .

5. A method as claimed in any one of claims 1 to 4, further comprising:

establishing complementary orthogonal trajectories to the topographical map.

6. A method as claimed in any one of claims 1 to 5, further comprising:

rescaling said given time frame for self affine probability densities or distributions.

7. A method as claimed in any one of claims 1 to 6, wherein said graphically illustrating further comprises establishing at least one region of interest for said evaluation based on at least one of an investor's perception of desirability or tolerance to risk, safety and efficiency.

8. A system for evaluating at least one of a risk, safety and efficiency property of

a portfolio belonging to a class of one of a probability density and a probability distribution, for a given time frame, comprising:

a benchmark identifier for obtaining at least one benchmark  $x_b$  having benchmark profit, benchmark loss and benchmark return values;

a class fitter for fitting one of

a stochastic investment class over said given time frame by obtaining a location parameter  $a$ , a scale parameter  $b$  and other corresponding shape parameters; and

an empirical investment class over said given time frame;

a parameter calculator for determining a mean return value  $x_m$  and a standard deviation  $\sigma_x$  using said class;

a plotter for displaying said portfolio graphically using said return value  $x_m$  and said standard deviation  $\sigma_x$  on an investment chart;

a component determiner for determining at least one solution to  $(x_m - x_b) = [(E_S - x_b) \cdot \alpha] + [(E_P - x_b) \cdot \gamma]$ , wherein  $(E_S - x_b)$  is a component of  $(x_m - x_b)$  representing an Expected Shortfall,  $(E_P - x_b)$  is a component of  $(x_m - x_b)$  representing an Expected Profit,  $\gamma$  is a component of  $(x_m - x_b)$  representing a probability of profit and  $\alpha$  is a component of  $(x_m - x_b)$  representing a probability of loss for said portfolio using properties of said class;

an illustrator for graphically illustrating at least one component of said expression, in the form of a topographical map on said investment chart using said benchmark  $x_b$ ;

whereby said portfolio can be evaluated in terms of at least one of risk, safety and efficiency.

9. A system as claimed in claim 8, further comprising:

an insurance determiner for determining at least one solution to  $(x_m - x_b) = I_S + I_P$ , wherein  $I_S$  is a component of  $(x_m - x_b)$  representing an insurance against an Expected Shortfall and  $I_P$  is a component of  $(x_m - x_b)$  representing an

insurance against an Expected Profit;

said illustrator graphically illustrating at least one of  $I_S$  and  $I_P$  in the form of topographical maps on said investment chart using said benchmark  $x_b$ .

10. A system as claimed in claim 9, further comprising :

an insurance efficiency determiner for determining  $E_3$  efficiency as the negative value of the ratio of the insurance against an Expected Profit  $I_P$  to the insurance against an Expected Shortfall  $I_S$ ;

said illustrator graphically illustrating said  $E_3$  efficiency, in the form of topographical map on said investment chart using said benchmark  $x_b$ .

11. A system as claimed in any one of claims 8 to 10, further comprising :

a component efficiency determiner for determining at least one of  $E_1$  efficiency as the ratio of the probability of profit  $\gamma$  to the probability of loss  $\alpha$ ,  $E_2$  efficiency as the negative value of the ratio of Expected Profit  $(E_P - x_b)$  to Expected Shortfall  $(E_S - x_b)$  and  $E_4$  efficiency as the ratio of the risk premium  $(x_m - x_b)$  to the probability of loss  $\alpha$ ;

said illustrator graphically illustrating at least one of said efficiencies, in the form of topographical maps on said investment chart using said benchmark  $x_b$ .

12. A system as claimed in any one of claims 8 to 11, wherein said illustrator establishes complementary orthogonal trajectories to the topographical map.

13. A system as claimed in any one of claims 8 to 12, further comprising:

a time rescaler for rescaling said given time frame for self affine probability densities or distributions.

14. A system as claimed in any one of claims 8 to 13, further comprising an investment zone determiner for establishing at least one region of interest for said evaluation based on at least one of an investor's perception of desirability or tolerance

to risk, safety and efficiency.